

## REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Objection to Abstract

The abstract has been amended to be less than 150 words, as required in item 2 on page 2 of the Official Action.

2. Rejection of Claims 1-40 Under 35 USC §103(a) in view of International Patent Publication WO0057273 (Park) in view of Korean Patent Publication KR9709748 (Kim)

This rejection is respectfully traversed on the grounds that neither the Park publication nor the Kim publication discloses or suggests, whether considered individually or in any reasonable combination, an emulator for verifying the logic design of a target chip to be mounted in a target system, in which:

- a. a target interface engine monitors the hardware pin signals and tracks changes in the signals; and
- b. a software processing engine stores without loss software variable being changed in an interrupt wait time, which is the time interval during the intervening period between the detection of a hardware trigger event and an acknowledgment thereto by the target interface engine,

as recited in independent claims 1, 17, and 32. As a result of the claimed combination of a target interface engine that monitors hardware pin signals and a software processing engine that stores software variable during the interval before target interface acknowledgment, *monitoring of the timings of the hardware pin signals and the software variables is synchronized.*

Instead, the Park publication discloses a VLSI emulator that includes:

- a software module made up of one or more processors for executing a software model of the functional part the VLSI,

- a reconfigurable module configured as a hardware model of the external interface part of the VLSI design, and
- a channel through which interface control packets, composed of commands and data, are transferred between the processing module,

while the Kim patent discloses a digital cellular modem system emulator for testing functions of a mobile station in a CDMA digital cellular system, including:

- a central processing unit,
- a serial input/output device, and
- a memory that includes hardware device operating means, a main control operating means, a transmit operating means, and a receiving operating means, which are implemented by a software algorithm, the “hardware device operating means” performing a “hardware operation test” by using a real-time multi-tasking kernel under the control of the control processing unit, *without actually interfacing with the hardware structure of the mobile station* (the “kernel” being part of the operating system on a computer).

**Thus, whereas in the Park design, the software algorithm executed by the software module interfaces with the hardware components of the target system, Kim’s software algorithm does not interface with any components.**

Because the Park and Kim publications disclosure emulators with entirely different purposes and methods of operation, it is respectfully submitted that they could only have been combined in hindsight. Furthermore, even if the references were combined, as proposed by the Examiner, the result would not have been the claimed invention. The Park publication is related to semiconductor chip emulation while the Kim patent is related to digital cellular communication system emulation, and as a result, the emulation technologies between Park and Kim are very different. For semiconductor chip emulation in Park, a software algorithm interfaces with the hardware components of the target system, whereas for digital cellular communication system emulation in Kim et al., the software algorithm does not interface with any hardware components. Thus, the teachings of the two cited

references are not compatible. *A person of skill in the art would not expect to apply the specific emulation process in Kim, which is not designed to take into account interfacing with hardware components, to the emulation in Park., which does involve interfacing with hardware.* This is specifically confirmed by the fact that Park et al. contains no suggestion or motivation to apply the testing functions of the digital cellular communication system emulation process disclosed in Kim.

Even if the Park and Kim publications were to somehow be combined, despite the lack of motivation for doing so, the combination would still not yield the features of the present invention as defined in the claims. Although Park disclose the concept of emulation with respect to the logic design of a target chip, Park fails to teach or suggest several claimed features of the present invention, including monitoring the time-varying changes in the hardware pin signals and the software variables, storing without loss the software variables being changed in the interruption wait time, and synchronizing the monitoring of timings of the hardware pin signals and the software variables.

Further, although the Kim publication was cited for the details of the emulation operation, it does not disclose the claimed features missing from Park. Specifically, Kim fails to disclose the emulation process of the present invention as defined in the claims. Kim also fails to teach or suggest the hardware structure of the hardware device operating means, the main control operating means, the transmit operating means, and the receiving operating means, which are implemented from memory by the software algorithm.

Finally, for the Examiner's reference, the Applicant respectfully notes that the Korean Intellectual Property Office granted the Korean counterpart application of the present application, as Patent No. KR0392569, issued on July 11, 2003.

Because the Park and Kim publications disclose incompatible systems with different purposes, and which therefore cannot be combined, and because any combination of the Park

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and Kim systems would not result in the claimed invention, withdrawal of the rejection of claims 1-40 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC

A handwritten signature in black ink, appearing to read 'By Urcia', with a long horizontal flourish extending to the right.

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